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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,013	07/17/2003	Kent Mertz	FREUF-130XX	1697
207	7590	05/04/2004	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP			GREENE, JASON M	
TEN POST OFFICE SQUARE			ART UNIT	PAPER NUMBER
BOSTON, MA 02109			1724	

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

<b>Office Action Summary</b>	<b>Application No.</b> 10/622,013	<b>Applicant(s)</b> MERTZ ET AL.	
	<b>Examiner</b> Jason M. Greene	<b>Art Unit</b> 1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-27 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-14 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____.  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/17/2003</u> .   | 6) <input type="checkbox"/> Other: ____.                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4-7, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matuda et al. in view of Dargel.

With regard to claim 1, Matuda et al. discloses a filter pack comprising a filter section comprising a sheet (12) of filter media comprising a nonwoven polymer material, the sheet of filter media having a plurality of parallel folded pleats (18), the filter section having two opposed longitudinal sides extending parallel to the pleats and two opposed transverse sides extending transversely to the pleats, and a frame comprising a top edge band (14) and a bottom edge band (14) comprising a nonwoven polymer material (polypropylene), the top edge band attached to one of the two transverse sides of the filter section, the bottom edge band attached to another of the two transverse sides of the filter section, ends of the pleats of the filter section fixedly retained along the top edge band and the bottom edge band in Figs. 1-3 and col. 4, line 52 to col. 5, line 52.

Matuda et al. does not disclose the top edge band and the bottom edge band having a channel configuration such that the pleats of the filter section are fixedly retained within the top edge band and the bottom edge band.

Dargel discloses a similar filter frame comprising a top edge band (90) and a bottom edge band (90) having a channel configuration and comprising the nonwoven polymer material (polypropylene) in Fig. 4 and col. 3, lines 14-34.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the channel shape of Dargel into the top and bottom edge bands of Matuda et al. to provide more contact area between the filter and the frame to provide improved sealing and increased structural support, as is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the top and bottom edge bands of Matuda et al. from the polypropylene material of Dargel to allow the frame to be electrostatically charged to aid in filtration, as suggested by Dargel in col. 3, lines 14-21.

With regard to claim 2, Matuda et al. and Dargel do not disclose the polymer material comprising a polyester.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any polymer material to provide a filter pack capable of operating in a specific application, such as at a desired temperature.

With regard to claims 4-6, Matuda et al. and Dargel do not disclose the nonwoven polymer material of the filter section including smaller fibers than the nonwoven polymer of the frame, the nonwoven polymer material of the filter section being thicker than the nonwoven polymer material of the frame, or the nonwoven polymer material of the filter section including a material having a greater filtration efficiency than the nonwoven polymer material of the frame.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to reduce the fiber size and increase the thickness of the nonwoven polymer material of the filter section such that the nonwoven polymer material of the filter section has a greater filtration efficiency than the nonwoven polymer material of the frame to provide a filter pack capable of removing a large percentage of small diameter particles from an air stream to be treated, as is well known in the art.

With regard to claim 7, Matuda et al. and Dargel do not disclose the nonwoven polymer material of the frame comprising a material having a greater stiffness than at least one layer of the nonwoven polymer material of the filter section.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the frame from a nonwoven polymer material having a greater stiffness than at least one layer of the nonwoven polymer material of the filter section to provide adequate support for the filter section.

With regard to claim 11, Matuda et al. does not disclose the frame further comprising two side edge bands comprising the nonwoven polymer material, the two side edge bands each having a channel configuration, each of the side edge bands attached to an associated one of the two longitudinal sides of the filter section.

Dargel discloses the filter frame further comprising two side edge bands comprising the nonwoven polymer material, the two side edge bands each having a channel configuration in Fig. 4.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the two side edge bands of Dargel into the filter pack of Matuda et al. to increase the structural rigidity of the filter pack by providing support on all 4 sides of the filter section.

With regard to claims 12-14, Matuda et al. and Dargel do not disclose the specific pleat spacing of the sheet of filter media or the filter section comprising a minipleat filter media.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the pleat arrangement of the sheet of filter media to provide optimal filtration performance for a specific application.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matuda et al. and Dargel as applied to claim 1 above and further in view of Johnson.

Matuda et al. discloses the top edge band and the bottom edge band being attached to the filter section with a thermally bondable nonwoven fabric.

Matuda et al. and Dargel do not disclose the top edge band and the bottom edge band being attached to the filter section with an adhesive.

Johnson discloses a similar filter pack wherein a top edge band and a bottom edge band are attached to the filter section with an adhesive (43) in Figs. 1 and 4 and col. 3, line 64 to col. 4, line 2.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the adhesive bonding means of Johnson for the nonwoven fabric of Matuda et al. to provide a reliable seal and prevent particles from passing between the filter section and the frame, as suggested by Johnson in col. 3, line 64 to col. 4, line 2.

4. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matuda et al., Dargel, and Johnson as applied to claim 8 above and further in view of Hirano et al.

Matuda et al., Dargel, and Johnson do not disclose the adhesive comprising polyester adhesive.

Hirano et al. discloses using a hot melt polyester adhesive to minimize generation of organic substances in col. 6, lines 12-14.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the polyester hot melt adhesive of Hirano et al. into

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the filter pack of Matuda et al., Dargel, and Johnson to minimize generation of organic substances, as suggested by Hirano et al. in col. 6, lines 12-14.

***Allowable Subject Matter***

5. Claims 15-27 are allowed.
6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 3, the prior art made of record does not teach or fairly suggest the filter pack of claim 1 wherein the filter section comprises a laminate comprising a melt blown polyester inner layer and spunbond polyester outer layers, and the frame comprises a spun bond polyester.

With regard to claims 15-27, Matuda et al. discloses a filter assembly comprising a filter pack comprising a filter section comprising a sheet (12) of filter media comprising a nonwoven polymer material, the sheet of filter media having a plurality of parallel



folded pleats (18), the filter section having two opposed longitudinal sides extending parallel to the pleats and two opposed transverse sides extending transversely to the pleats, a top edge band (14) and a bottom edge band (14) comprising a nonwoven polymer material (polypropylene), the top edge band attached to one of the two transverse sides of the filter section, the bottom edge band attached to another of the two transverse sides of the filter section, ends of the pleats of the filter section fixedly retained along the top edge band and the bottom edge band in Figs. 1-3 and col. 4, line 52 to col. 5, line 52.

Dargel discloses a similar filter frame comprising a top edge band (90) and a bottom edge band (90) having a channel configuration and comprising the nonwoven polymer material (polypropylene) in Fig. 4 and col. 3, lines 14-34.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the channel shape of Dargel into the top and bottom edge bands of Matuda et al. to provide more contact area between the filter and the frame to provide improved sealing and increased structural support, as is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the top and bottom edge bands of Matuda et al. from the polypropylene material of Dargel to allow the frame to be electrostatically charged to aid in filtration, as suggested by Dargel in col. 3, lines 14-21.

The prior art made of record does not teach or fairly suggest the filter assembly of claim 15 wherein the filter assembly comprises a plurality of filter packs fixedly

attached together along opposed abutting transverse faces of adjacent top and bottom edge bands, the attached filter packs having a top side, a bottom side, and opposed longitudinal sides, side edge bands having a channel configuration fixedly attached to the plurality of filter packs along the opposed longitudinal sides orthogonal to the top and bottom edge bands, the side edge bands and the outermost top and bottom edge bands forming a frame for the plurality of filter packs, the side edge bands comprising the nonwoven polymer material.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Schlör et al. and Fath et al. references disclose similar filter packs.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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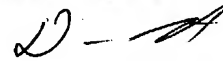
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Jason M. Greene  
Examiner  
Art Unit 1724



jmg  
April 28, 2004

DUANE SMITH  
PRIMARY EXAMINER

  
4-28-04